

REMARKS

Claims 1-11 are currently active.

Claims 1 and 7 have been amended. Antecedent support for the amendments is found on page 10, lines 20-23.

The Examiner has rejected Claims 1-4, 7, 8 and 11 as being unpatentable over Edwards in view of Allio and Aye. Applicants respectfully traverse this rejection.

Referring first to Edwards, the Examiner states on page 3 of the Office Action that Edwards teaches a 3D image display device associating a method comprising a display screen 12, and light locking shutter 20, 22; a display control circuit 16, 28; a left eye, a right eye (see figure 1, column 3, lines 42-66). It is respectfully submitted by applicants that the limitations of Claim 1 require there be "a display screen upon which stripes of the image appeared to in at least three distinct phases". There is no reference whatsoever to stripes, let alone stripes of an image that appear in at least three distinct phases upon the display screen. There is no "light blocking shutter disposed in front of the display screen forming a striped pattern which lets through only 1/3 of the stripe of the image on the display screen during each of the at least three distinct phases" as found in Claim 1. Furthermore, there is no computer

connected to the display screen, as found in Claim 1, nor any of the other limitations mentioned in Claim 1. Lastly, there is no eye tracker that is found in Edwards.

Referring to Edwards, the entire focus of Edwards is in regard to a pair of glasses that fit on the face of the viewer and are controlled by control system 28. Specifically, Edwards teaches the projection system 10 is provided for generating an image on a screen 12, the image comprising a 3D projection which is generated by two separate projectors and the projection system 10, one for the right eye and one for the left eye. The projector 10 also outputs a single control signal on a line 14 to a control transmitter 16. (It must be stressed that here, the projector is outputting a control signal to a control transmitter 16 and nowhere is the projector shown to be controlled in any way by the control system 28). See column 3, lines 41-48.

The screen 12 is operable to transmit 2 images, one image designated for the left eye of the viewer and one image designated for the right eye of the viewer. Glasses are provided for being disposed on the viewer's head 18, the glasses having a right lens 20 and a left lens 22. The control transmitter is operable to transmit a control signal to infrared transmission line 24 to a control receiver 26. The receiver 26 is associated with the glasses of user 18 and is operable to receive and decode information and the command channel 24 and transmit it to a control system 28. The control system 28 is operable to interface with each of

the lenses 20 and 22 and control the parameters thereof. The control information for controlling the lenses 20 and 22 is contained on the controlling 24, which command information was generated by the control transmitter 16. See column 3, lines 47-64.

The parameters that are controlled by the system taught by Edwards are the duty cycle parameters of lenses 20 and 22. See column 4, lines 1 and 2. Accordingly, the key and the context of the teachings of Edwards is controlling a pair of glasses and the lenses in the glasses. The entire system is responsive to the projector which projects an image on the screen. However, nothing special is taught to be done with this projector or the image on the screen, but rather to the reactive pair of lenses of the glasses.

Referring to Allio, there is disclosed an autostereoscopic video device and system. Allio teaches that when a video screen is observed through a magnifying glass, it can be seen that the display color image is made up of a periodic succession of red, green and blue collar points, which point shine more or less brightly, and the result in color sensation is due to the three elementary components being subject to a mixing affect in the eye of the observer. See column 2, lines 44-50. More importantly, Allio teaches a technique for displaying images without the use of spectacles, such as that taught by Edwards. In the technique taught by Allio, it is necessary to place a converging lens array in front of the screen and parallel there to. See column 2, lines 52-54. Allio teaches that a lens array 10 has a pitch equal to that of

an elementary phosphor color point multiplied by the number of viewpoints. The number of viewpoints is equal to 4. There are thus 4 horizontally juxtaposed pixels P1 to P4, pixel P1 corresponding to the first view point, pixel P2 to the second viewpoint, pixel P3 to the third viewpoint, and pixel P4 to the fourth view point. Each of the pixels on the screen 20 has three components, respectively red, green and blue. The lens array 10 has microlenses L1, L2, L3 and a pitch equal to the width occupied horizontally by 4 juxtaposed color point, i.e. about four-thirds of a pixel. Thus depending on his position, the eye of an observer observing the screen 20 through the lens array 10 will see either a juxtaposition of the red component of pixel P1, the green component of pixel P2 and the blue component of pixel P3, or a juxtaposition of the green component, the blue component and the red component or a juxtaposition of the blue component, the red component and the green compound or finally juxtaposition of the red component, the green component and the blue component. In other words, each eye of the observer is likely to mix visually the red, green and blue components of different pixels in the image. See column 3, lines 20-50.

It must be stressed that there is no teaching or suggestion whatsoever of a display screen upon which stripes of the image appear. There is no concern in Allio of such a limitation, but rather what is happening with respect to each of the colors in each of the pixels. There is also no teaching or suggestion of the limitation of a light blocking shutter or a computer as found in Claim 1, or additionally an eye tracker.

Furthermore, the teachings of Allio cannot be combined with the teachings of Edwards because Edwards is specifically teaching a spectacle based system where Allio is specifically teaching a non-spectacle based system that teaches not to use spectacles. For this reason alone, these references cannot be combined and are incompatible. Moreover, these references have nothing to do with each other, let alone the claimed invention. In addition, there is no motivation in the references themselves, as there must be, to combine the teachings the Examiner is relying upon to arrive at applicants' claimed invention. In fact, one skilled in the art would have no clue on how to take the disparate teachings of each of these references and combine them into an operational system, let alone one that arrives at applicants' claimed invention.

Referring to Aye, there is taught an autostereoscopic display system with fan out multiplexor. The Examiner cites Aye simply because it teaches an eye scanner. However, once again, the simple question must be asked, why would one skilled in the art even consider an eye scanner in regard to the teachings of Edwards or Allio, since Allio or Edwards do not have any need or even a suggestion for an eye scanner? There is nothing in the teachings of either Edwards or Allio that would in any way use an eye scanner. In the primary reference Edwards, the entire system is based on the operation of lenses on spectacles on the viewer's face. This lenses are sitting right in front of the eyes of the user, and move with the users'

face. Thus, it is respectfully submitted it is almost nonsensical to even consider modifying or combining such a system with an eye tracker to arrive at applicants' claimed invention.

The Examiner states that it would be obvious to combine the teachings of Allio for Edwards 3D display device because this would obtain focal lengths that are smaller and to obtain observer areas that are smaller, thereby avoiding the observer perceiving the dot structure of color points and pixel on the screen. Again, the Examiner is relying on an independent rationale not found in either Edwards or Allio or any of the applied art of record to combine the references themselves. Furthermore, with the additional limitation in Claim 1 "which renders 2 3D scenes corresponding to the eyes of the observer for arbitrary observer position and orientation," this teaching is irrelevant. There is no teaching or suggestion in the applied art of record how to combine the various elements to provide 2 3D scenes corresponding to the eyes of the observer for arbitrary observer position and orientation. As is the focus of applicants' claimed invention, and stated in the specification for instance, on page 10 beginning on line 17, where it states in the operation of the invention, a modified parallax barrier was created that combined spatial multiplexing and temporal multiplexing. Since no fixed parallax barrier geometry could accommodate arbitrary observer position and orientation, a diametrically varying parallax barrier was created, one that continually changes the width of the positions of stripes as the observer moves. The applied art of record does not concern itself, recognize or even mention the problem that applicants solve.

Accordingly, Claim 1 is patentable over Edwards in view of Allio and Aye.

Claims 2-4 are dependent to parent Claim 1 and are patentable for the reasons Claim 1 is patentable. Claim 7 is patentable for the reasons Claim 1 is patentable. Claims 8 and 11 are dependent to parent Claim 7 and are patentable for the reasons Claim 7 is patentable.

The Examiner has rejected Claims 5, 6, 9 and 10 as being an patentable over Edwards in view of Allio, Aye and Johnson. Applicants respectfully traverse this rejection. The Examiner cites Johnson simply for the teaching of a ferroelectric liquid crystal display and a Pi cell. Allio does not teach or suggest anything at all involved with stripes let alone the other limitations of Claims 1 and 7. There is no reason why one skilled in the art would look to combine Johnson, or for that matter Allio and Aye and Edwards without the use of hindsight from applicants' own claims. However, the use of hindsight is contrary to patent law. There must be some teaching in the references themselves to combine the references to arrive at applicants' claimed invention, and there is none. Accordingly, Claims 5, 6, 9 and 11 are dependent to parent Claims 1 or 7, and are patentable for the reasons Claims 1 or 7 are patentable.

The Examiner has rejected Claims 1 and 7 as being unpatentable over Street and view of Allio. Applicants respectfully traverse this rejection.

The Examiner suggests that Street teaches all the limitations of Claim 1 except for the teachings of 1/3 of the stripe of the image on the display screen during each of at least three distinct phases. The Examiner cites Allio for this teaching. However, as explained above, Allio does not teach anything at all about striping, but only about a specific pixel. There is no teaching or suggestion in regard to Allio about the limitation of 1/3 of each stripe of the image on the display screen during each of at least three distinct phases as red, green and blue that continually changes the width and positions of the stripes as the observer moves. The Examiner is reading this limitation into the teachings of Allio. For this reason alone, the combination of the references of Allio and Street and not arrive at the limitations of Claim 1 of applicants.

In addition, the limitation of Claim 1 of "a light blocking shutter disposed in front of the display screen forming a striped pattern which lets through only 1/3 of each stripe of the image on the display screen during each of the at least three distinct phases" is not taught. What the Examiner is suggesting is that the stripes of cells on the display screen have 1/3 of 3 distinct phases. Applicants' claimed invention is in regard to a light blocking shutter which lets through only 1/3 of each stripes. This is contrary to what the Examiner is arguing

in regard to combining the teachings of Allio in regard to the stripes themselves of Street.

There is no teaching or suggestion of a light blocking shutter disposed in front of the display screen forming a striped pattern which lets through only 1/3 of the stripe. This is completely distinct from the Examiner's combination of street and Allio. Accordingly, Claims 1 and 7 are patentable over Street in view of Allio.

In view of the foregoing amendments and remarks, it is respectfully requested that the outstanding rejections and objections to this application be reconsidered and withdrawn, and Claims 1-11, now in this application be allowed.

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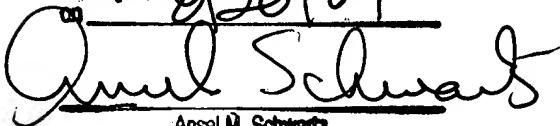
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